

Table 3-1. Identification of Inputs to the Decision

Location	Area of Environmental Concern	Sampling Method(s) and Rationale
Site-Wide	Asbestos Containing Material	No site-wide sampling of ACM is proposed. The presence of ACM throughout the site is documented in the Comprehensive EBS. Approaches to removal of ACM are well understood and readily available. These materials will be handled, as necessary, in accordance with Asbestos Hazard Emergency Response Act (AHERA) regulations.
	Lead-Based Paint	No site-wide sampling of LBP is proposed. Process knowledge and construction techniques suggest that LBP is present within and around each of the buildings at the site. Approaches to removal of LBP are well understood and readily available. These materials will be handled, as necessary, in accordance with appropriate regulations.
	Fluorescent light ballast potentially containing PCBs	No site-wide sampling is proposed. Light ballasts can be removed, as appropriate, and handled in a compliant manner without collection of additional data during this effort.
	Sewer system. The EBS report identifies concerns at several buildings with regard to potential releases to the sewer system. Given these concerns, and the site-wide existence of said system, the sewers have been added as a site-wide category.	Video surveys of the sewer system will be conducted throughout selected sewer mains as indicated on Figure 3-10 . Sediment and wastewater samples will be collected from sewer mains via manholes (see Figure 10 for sample locations). Contingency borings will be installed and sampled to delineate the lateral extent of contamination in the event breaches in the sewers are identified during the video survey and associated sediment/wastewater samples exceed threshold values for total metals (23), VOCs, SVOCs, PCBs, and/or TPH.
	Groundwater	Groundwater across the site consists of localized perched units that are at least 12 feet below ground surface. Detections to date have been low-level. Given the industrial setting of the site and the lack of a completed pathway, i.e., no receptors, additional groundwater characterization is not required. Consequently, no additional monitoring wells are planned as part of this effort.
Building 1	PCB oil-containing electrical equipment	No sampling of the equipment for PCBs is proposed. Samples can be collected, if required, during equipment removal, as appropriate.
	PCB oil stain	A soil boring will be installed at the stain location as shown in Figure 3-1 . Samples will be collected from the concrete (01CS-01) and from the soils beneath the concrete floor (01SB-07). Additionally, process knowledge suggests that releases could have occurred from the breaking operations and/or leaking transformers. The integrity of the concrete floor and sump structures is unknown. Accordingly, soil borings will be advanced at two breaking locations (see Figure 3-1 , 01SB-01 and 01SB-02) to evaluate whether or not PCB/TPH contamination exists beneath the building floor. Contingency borings will be completed if target thresholds are exceeded, to delineate the lateral extent of contamination.
	Metal-contaminated soil in east storage area and near sewer connections	Process knowledge suggests that releases containing heavy metals could have occurred to soils and the sumps/sewer system as a result of billet storage. As shown in Figure 3-1 , soil borings will be sampled at each of the sump locations (near the cold saw cut operations and near the grinding operations, 01SB-08 through 01SB-11). Contingency borings will be completed if target thresholds are exceeded. Evaluation of the sewer system will be conducted as part of the site-wide sewer study (see site-wide section above). Soil borings will also be completed along the eastern and western sides of the building (01SB-03 through 01SB-06) and in the east and west parking lot (see Figure 3-2 , locations 01SB-12 through 01SB-17). Contingency borings will be completed if target thresholds are exceeded, to delineate the lateral extent of contamination.

Note: All sampling and surveying activities will be completed in accordance with protocols presented in Section 4 of this FSP.

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074X

Site: SLAAP
 ID # 100210021222
 Break: 3.0
 Other: 8/01

Location	Area of Environmental Concern	Sampling Method(s) and Rationale
Building 2	<p>Metal-contaminated surface soil</p> <p>Metal-contaminated sump water</p> <p>Chlorinated solvents-contaminated groundwater</p> <p>Potential PCB contamination at former hydraulic oil storage tank area</p> <p>TPH within and under the fuel lines/vaults (regulatory concern mentioned during finalization of the Comprehensive EBS)</p>	<p>Process knowledge suggests that the rotary furnaces, quenching operations, maintenance area, and/or fuel delivery systems may have been responsible for environmental impacts throughout the building footprint. Building-wide contamination includes TAL/TCL metals, VOCs, PCBs, and/or TPH in surface soils, subsurface soils, and/or groundwater. Accordingly, rather than present sampling activities that directly correlate to specific areas of concern from the Comprehensive EBS, the sampling strategy for Building 2 is presented from a building-wide perspective. Investigations planned for Building 2 (see Figure 3-3 for sample locations) are as follows:</p> <ul style="list-style-type: none"> Quench tanks within Building 2 overflowed on a regular basis to a series of north/south trending floor drains along the eastern and western perimeter of the building. These drains are believed to connect into sewer lines along the interior of the western and southern sides of Building 2. Sediment and water samples will be collected from each of the interior manholes (Figure 3-3, 02SD-01 through 02SD-03 and 02WW-01 through 02WW-03, respectively) in accordance with protocols presented in Section 4 of this FSP. Evaluation of the sewer system (i.e., those portions of the sewer drain system outside of the building's footprint will be conducted as part of the site-wide sewer study). The foundation rings for each of the rotary furnaces and accompanying "production loop" (i.e., process area including descaling station, piercing operations, draw bench area, etc.) are potential collection areas for hydraulic oil, lubricants, and/or fuel. The structural integrity of these structures is unknown. Accordingly, two of the "production loops" will be excavated to determine the likelihood and degree of contamination present within and/or from these units. Sample locations (see Figure 3-3) 02TX-01 through 02TX-04 delineate samples to be collected from the first production loop. Sample locations 02TX-05 through 02TX-08 delineate samples to be collected from the second production loop. Suspicious sediments or residues within the structures will be sampled, if encountered. A ram-hoe attachment or equivalent equipment will be utilized to break through the concrete to allow sampling of the underlying material. Soil samples will be collected from the excavation at each of the "production loop stations". Contingency soil borings will be completed if target thresholds are exceeded. A total of 20 refractory bricks (2 from each of the 10 foundation rings) will be collected from the foundation rings for asbestos analysis (to ascertain waste disposal requirements for the bricks). Refractory brick sample locations are shown in Figure 3-3 by sample locations 02AC-01 through 02AC-20. Oil stains are present in various locations within the building. Surface and subsurface soil samples will be collected for PCB and TPH analysis at locations 02SB-01 through 02SB-04. Contingency samples will be collected to define lateral/vertical extent, if appropriate, pending evaluation of the initial results, to delineate the lateral extent of contamination. An east-west trending pipe trench exists within Building 2 that served as a redundant feed system between large pumps in the building. Additionally, two large above-ground storage tanks (one on each side of the building) stored hydraulic oil that was ultimately delivered to the production loops. Soil borings will be installed along the redundant feed system and at each of the above-ground storage tank locations as indicated in Figure 3-3 (02SB-05 through 02SB-09). Samples collected from each of the borings will be analyzed for PCBs. Sediment samples will be collected from the fuel distribution vaults for TPH analysis. Sediment sample locations are shown on Figure 3-3 as 08SD-01 and 08SD-02.
Building 3	<p>PCBs in the following areas</p> <ul style="list-style-type: none"> concrete floor in basement basement earthen soil concrete and brick walls in basement and first-floor chip chute areas various equipment drain and sump water elevator equipment and stains in penthouses <p>Cracked and peeling paint and cracked concrete floor</p>	<p>PCB contamination associated with Building 3 is being characterized and remediated under a separate effort. No additional sampling for PCBs will be conducted as part of this effort.</p> <p>Lead-based paint is addressed as a site-wide issue above.</p>

Note: All sampling and surveying activities will be completed in accordance with protocols presented in Section 4 of this FSP.

Location	Area of Environmental Concern	Sampling Method(s) and Rationale
Building 3 (continued)	Semi-volatile organic compound (SVOC) and PCB-contaminated soil near the chip chute area on the north side of the building	PCB-contaminated soil in excess of 50 ppm is suspected to be present outside (north) of the former chip chute area. AMCOM plans to excavate and dispose of this contamination in the near future. The limits of excavation associated with this effort will be determined within the upcoming weeks. Upon determination of the excavation limits, boring locations will be identified to determine the lateral and vertical extent of any remaining contamination. It is anticipated that borings will be placed around the perimeter of the remediated region to determine the lateral extent of contamination and within the remediated region to determine the vertical extent of contamination. Additional contingency borings will be installed, if appropriate, pending results of the new borings, to delineate the lateral extent of contamination.
	Airborne pesticides in earthen soil detected in basement	Process knowledge suggests that rodent/insect controls may have been utilized in the basement. Furthermore, soils samples collected in an earlier study and an air sample collected during the EBS confirmed the presence of pesticides in the basement. Consequently, soil samples collected in support of the risk assessment will be analyzed for pesticides.
Building 4	PCB oil-containing electrical equipment	No sampling of the equipment for PCBs is proposed. Samples can be collected, if required, during equipment removal, as appropriate.
	PCB oil stain under electrical equipment	PCBs have been detected in oil stains on the concrete floor. Consequently, samples will be collected from the concrete and the underlying soils to determine the extent of the contamination (see Figure 3-6, 04CS-01 and 04SB-01). Contingency borings will be installed, if necessary, to delineate the lateral extent of contamination.
	PCB oil-stained transformer pads	Wipe samples will be collected in the basement beneath two large transformer bases (one external [04SW-01] and one internal [04SW-02] to the original building footprint as shown in Figure 3-6) and analyzed for PCBs. If PCBs are detected in excess of the PCB Rule [40 CFR 761], samples will be collected from the concrete and the underlying soils to evaluate the extent of the contamination. Contingency borings will be installed, if necessary, to delineate the lateral extent of contamination.
	PCB-contaminated material in air compressor pits	Process knowledge suggests that releases could have occurred from leaking compressors. The integrity of the concrete floor and pit structures is unknown. Accordingly, soil borings will be advanced at two locations (04SB-02 and 04SB-03) to determine whether or not PCB/TPH contamination exists within the concrete and/or beneath the building floor. Contingency borings will be completed if target thresholds are exceeded. Sample locations are shown on Figure 3-6.
	SVOC-contaminated soil	The Comprehensive EBS Report states that SVOC contamination is likely a background condition and no further characterization is warranted.
Building 5	PCB-contaminated elevator equipment and oil stains in penthouse	PCBs have been detected in oil staining near the elevator equipment in the penthouse. Oil staining has also been visually observed in the elevator shaft. Consequently, a wipe sample (05SW-01) will be collected from stained area within the elevator shaft. Samples of the concrete and the underlying soils will be collected if the wipe sample indicates that PCBs are present. Contingency borings will be installed, if necessary, to delineate the lateral extent of contamination. Sample locations are shown on Figure 3-7.
	SVOC-contaminated soil	One soil boring (05SB-01) will be installed at the former oil storage area and sampled for SVOC and TPH. Contingency borings will be installed, if necessary, to delineate the vertical extent of contamination. Sample locations are shown on Figure 3-7.
Building 6	Metal-contaminated ash in hearth	The detection of metal contamination in the hearth ash created a concern with regard to the old ventilation system. In an earlier building configuration, the dark room and laboratory were adjacent to the hearth room and were all likely tied into the same ventilation ducting. Renovation activities would have generally eliminated any contaminants that may have been present. However, to address the concern with regard to the old ventilation system, a wipe sample (06SW-01) and a sediment sample (06SD-01) will be collected from the ventilation ducting in the hearth room and analyzed for metals, VOCs, and SVOCs. Sample locations are shown on Figure 3-8.
	SVOC-contaminated soil	One soil boring (06SB-01) will be installed at the former oil storage area and sampled for SVOC and TPH. Contingency borings will be installed, if necessary, to delineate the vertical extent of contamination. Sample locations are shown on Figure 3-8.

Note: All sampling and surveying activities will be completed in accordance with protocols presented in Section 4 of this FSP.

Location	Area of Environmental Concern	Sampling Method(s) and Rationale
Building 7	EBS identified no areas of environmental concern, however, concrete staining in the building and hexavalent chromium from the cooling tower operations will be addressed as part of this FSP.	<p>TPH is suspected in stains on the building floor. Consequently, a wipe sample (07SW-01) will be collected from the stained area and analyzed for TPH. Samples of the concrete and the underlying soils will be collected if the wipe sample indicates that TPH is present. Contingency borings will be installed, if necessary, to delineate the lateral extent of contamination. Sample locations are shown on Figure 3-9.</p> <p>Process knowledge suggests that sediments from the cooling tower operation may contain hexavalent chromium. Consequently, a test pit (07TX-01) will be excavated within the former cooling tower base to identify whether the sediment layer exists. A soil sample will be collected from the sediment layer and analyzed for hexavalent chromium. If the analytical results exceed threshold values, a trench will be excavated laterally from the test pit to establish the radial extent of contamination. Samples will be collected at 10 foot intervals at discrete depth locations from within the trench. Sample locations are shown on Figure 3-9.</p>
Building 8 and 8A	<p>SVOC-contaminated soil with extent assessed.</p> <p>Regulatory comments on the EBS Report requested additional characterization of the fuel lines leading to Building 2.</p>	<p>Extent of SVOC contamination has been assessed as part of the Comprehensive EBS and no further characterization appears warranted.</p> <p>As noted in the Building 2 description above, sediment samples (08SD-01 and 08SD-02) will be collected from within the fuel distribution vaults for TPH analysis. Contingency borings will be installed, if necessary, to delineate the lateral extent of contamination. Additionally, soil borings (08SB-01 through 08SB-07) will be installed along the fuel distribution pipeline connecting Buildings 2 and 8. Sample locations are shown on Figure 3-3.</p>
Buildings 9 and 9A through 9D	No areas of concern	No further characterization appears warranted.
Building 10	Leaking UST incident extent assessed	Soil borings will be installed at locations outside of the original excavation to determine the levels of residual contamination associated with the USTs. Soil samples will be analyzed for TPH and BTEX. Sample locations are depicted in Figure ?? .
Building 11, 11A, and 11B	No areas of concern	No further characterization appears warranted.

Note: All sampling and surveying activities will be completed in accordance with protocols presented in Section 4 of this FSP.



BILLET CUTTING BUILDING (Building 1)

▽
01SB-03
▽

▽
▽
01SB-04
▽

▽01CS-01
01SB-07

▽
01SB-02

▽
01SB-05

▽
01SB-06

▽
01SB-08 01SB-09
▽▽

▽▽
01SB-10 01SB-11
▽▽

LOADING DOCK

LEGEND:

- ◆ SWMW-1 MONITORING WELL LOCATION
- 07TX-01 TEST PIT (□ = CONTINGENCY BORING)
- ▽ 01SB-04 SOIL BORING (▽ = CONTINGENCY BORING)
- ▲ 04SW-02 SURFACE WIPE SAMPLE
- ◆ 04CS-01 CONCRETE SAMPLE & SOIL
- 04SB-01 BORING (◇ = CONTINGENCY SAMPLE AND BORING)

20 0 20 40

SCALE FEET

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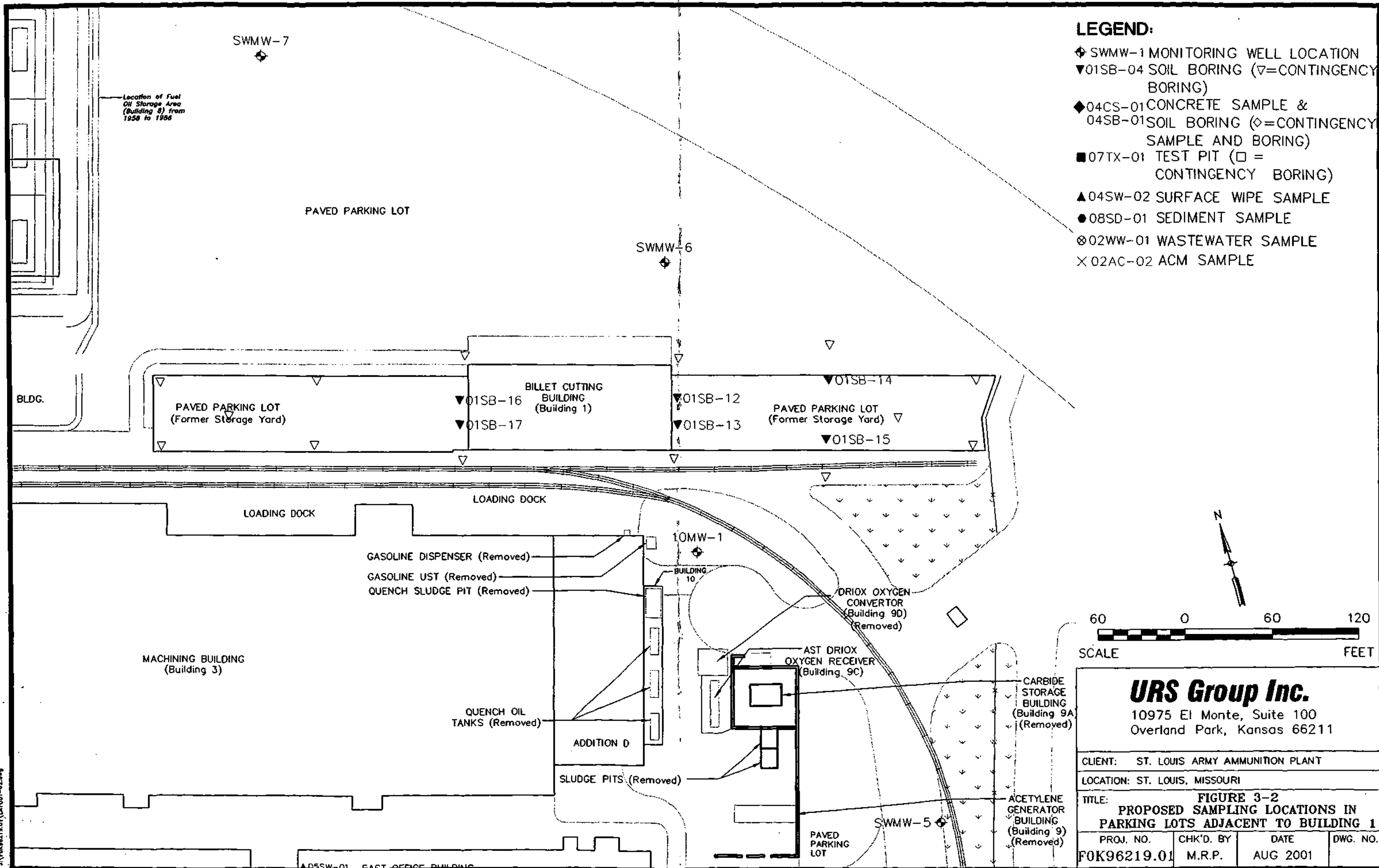
10975 El Monte, Suite 100
Overland Park, Kansas 66211

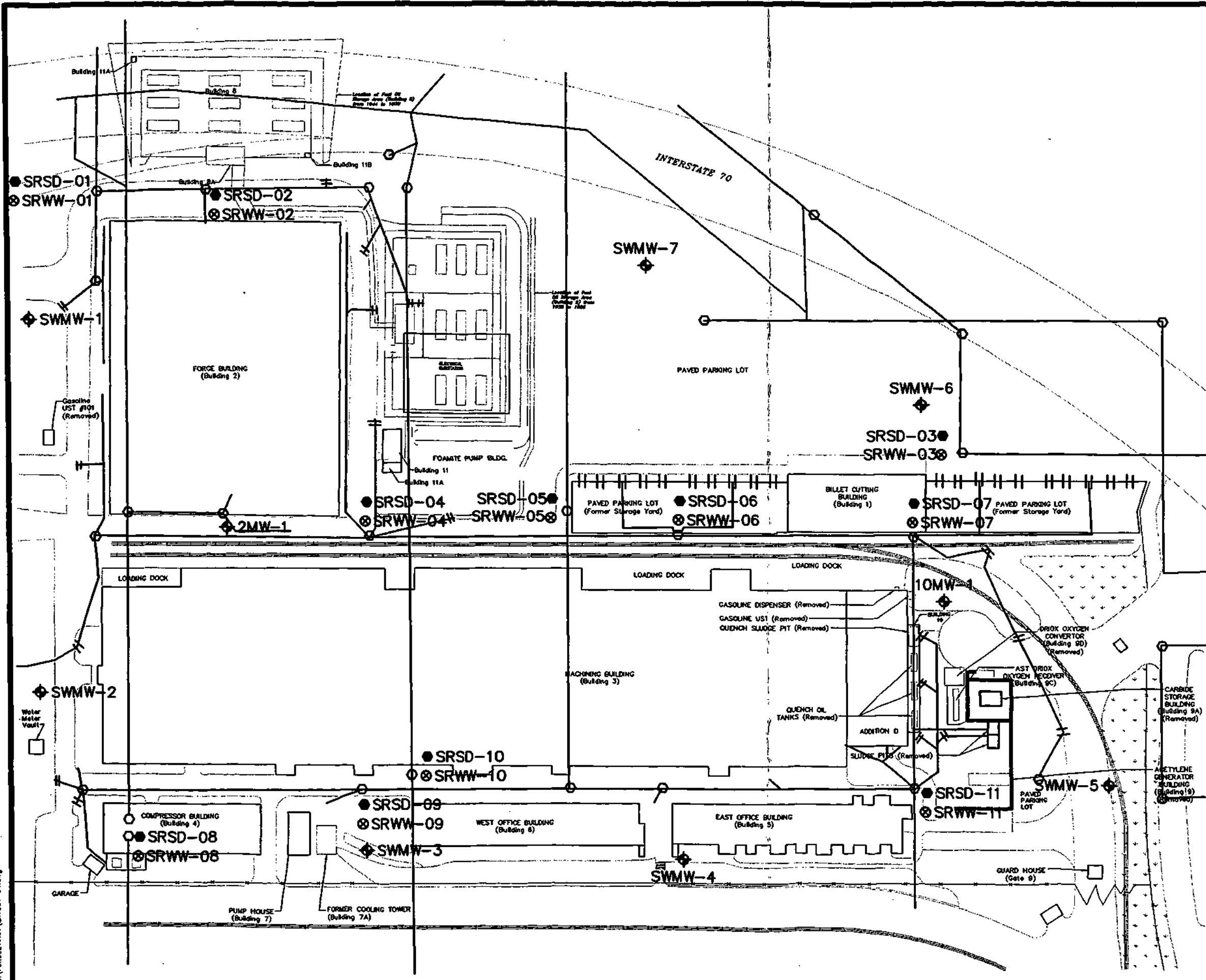
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LOCATION: ST. LOUIS, MISSOURI

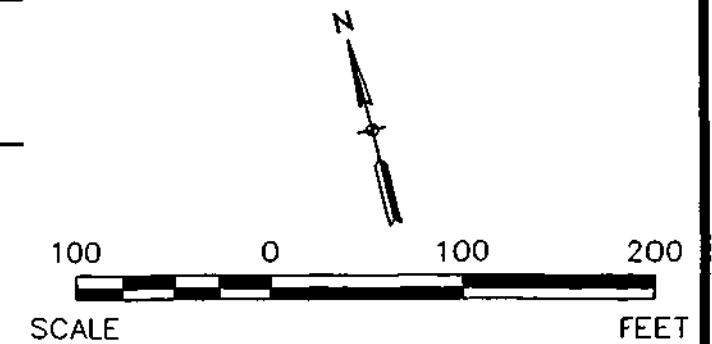
TITLE: **FIGURE 3-1
PROPOSED SAMPLING LOCATIONS IN
BUILDING 1**

PROJ. NO. FOK96219.01	CHK'D. BY M.R.P.	DATE AUG 2001	DWG. NO.
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- LEGEND:**
- ◆ SWMW-1 MONITORING WELL LOCATION
 - SEWER LINE
 - MANHOLE
 - || CATCH BASIN/SEWER INLET
 - SRSD-01 SEDIMENT SAMPLE
 - ⊗ SRWW-01 WASTEWATER SAMPLE



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CLIENT: ST. LOUIS ARMY AMMUNITION PLANT

LOCATION: ST. LOUIS, MISSOURI

TITLE: **FIGURE 3-10**
PROPOSED SAMPLING LOCATIONS FOR THE
SITE-WIDE SEWER SURVEY

PROJ. NO. FOX96219.01	CHK'D. BY M.R.P.	DATE AUG 2001	DWG. NO.
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LEGEND:

◆ SWMW-1 MONITORING WELL LOCATION

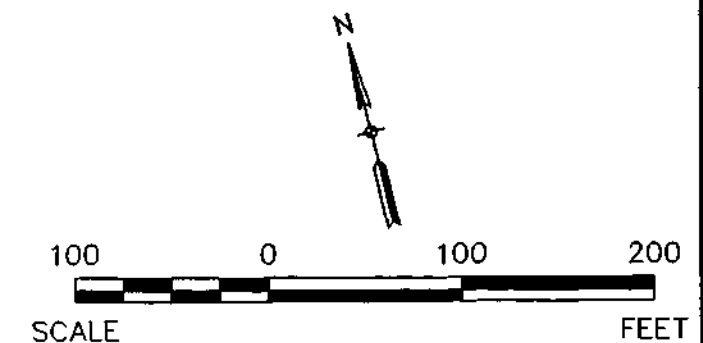
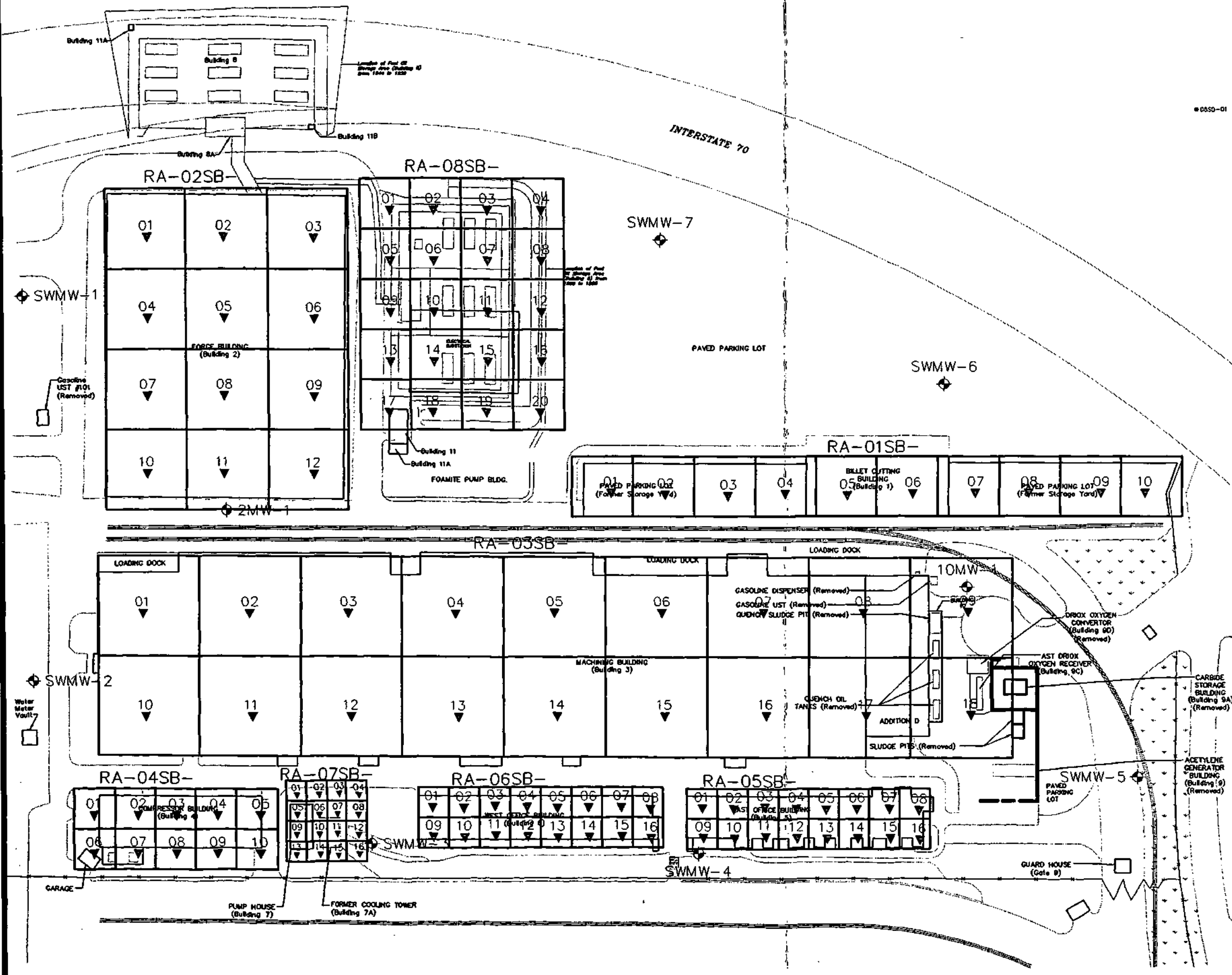
02
▼ SOIL BORING

06SSD-01 SEDU

RA-07SB-

01 ▼	02 ▼	03 ▼	04 ▼
05 ▼	06 ▼	07 ▼	08 ▼
09 ▼	10 ▼	11 ▼	12 ▼
13 ▼	14 ▼	15 ▼	16 ▼

SYSTEMATIC SAMPLING
GRID FOR SAMPLES
RA-07SB-01 THROUGH
RA-07SB-16



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CLIENT: ST. LOUIS ARMY AMMUNITION PLANT

LOCATION: ST. LOUIS, MISSOURI

TITLE: **FIGURE 3-11
LOCATION OF SYSTEMATIC RISK
ASSESSMENT SAMPLES**

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